An Inaugural Dissertation On Dropsy

By Samuel Shuman

~~By~~ [redacted]

of

Hagers-Town, Maryland

1816

passed March 22 1816

1. Dropsy -
2. Dropsy -
3. ascites -
4. Dropsy of Brain
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It is my design in the succeeding pages to take a short retrospect of the doctrines promulgated by the principal authors who have written on that form of disease denominated Dropsy. I shall then take the liberty of adducing my own opinion as to the causes which sometimes occasion dropsical affections; and finally terminate with a description of the method of cure founded upon what I conceive, just theoretical principles.

As this subject has been discussed by many learned and ingenious writers, an endeavour to investigate the phenomena and an effort to account for the production of dropsy, may be considered as presumption in me, a mere Novice in the science of medicine. The only apology I have to offer, is the difficulty or almost impossibility of selecting a subject which has not received elucidation from the pens of authors of acknowledged talents and justly acquired

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I shall now proceed to examine the theory of this disease as taught by Dr. Cullen. In attempting to controvert the opinions of eminent and illustrious teachers of medicine, I feel great diffidence, the natural concomitant of youth and inexperience; nor should I at this time have presumed to become an author if it was not indispensably necessary. As, however, correct theories in medicine are always desirable, if the subsequent observations have any tendency to that end, I shall think the time employed in writing them, not entirely thrown away.

Dr. Cullen says "in persons in health, a serous or watery fluid seems to be constantly poured out, or exhaled in vapour into every cavity of the body" and, "this fluid seems constantly to be soon again absorbed from thence by vessels adapted to this purpose". The language here made use of by the Professor is extremely exceptionable.

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That a fluid is effused into every cavity of the human body no person pretends to doubt, but that this fluid is exhaled in the form of vapour appears to me very ambiguous.

The perspirable matter was for a long time supposed to be an exhalation from the capillaries of the skin, this opinion is now generally laid aside, and the doctrine of its being a secretion has been almost universally adopted. It is to me equally obvious that the fluid poured out into the different cavities, for the purpose of lubricating their surfaces, is a secretion and not an exhalation.

Dr Cullen then very properly states that "dropsy may be imputed to an increased effusion, or to a diminished absorption".

An increased effusion is often occasioned by the circulation in the venous system being obstructed; in this instance the blood is exposed a greater length of time to the action of the ca=

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pillaries and in consequence more fluid is se=
creted from it. Nature has wisely provided
something analogous to this in the structure
of the liver; the veins returning the blood from
the principal abdominal viscera unite to form
the vena portarum, which after entering the
liver is divided and subdivided after the man=
ner of an artery, the circulation of course is
slow and the blood retained a considerable
length of time in this organ. The tardy mo=
tion of the blood through the liver is very
favourable for an abundant secretion of bile,
a large quantity of which is daily expended
in the process of digestion; this object could
not have been attained if the secretion were
made from arterial blood as in other glands.

The most frequent cause of obstruction
given to the return of the venous blood is a
scirrhosity of the liver or spleen, produced by
intemperance in the use of ardent spirits or

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by long continued intermittent fever, particularly when improperly treated in the commencement, and dropsies owing to this state of the viscera are of the most obdurate nature, and often incurable.

"One of the most frequent causes of an increased exhalation," says Dr Cullen, "I apprehend to be a laxity of the exhalant vessels."

This laxity of the exhalants, as he terms it, he imagines occurs in the case of general debility of the system, which so often accompanies dropsical effusions. That dropsy is sometimes owing to debility is unquestionable, but, that the proximate cause is a laxity of the capillaries is in my opinion undoubtedly erroneous. I would ask, if debility and a laxity of the capillaries are the cause of the increased effusion in dropsy, why does not an effusion of perspirable matter occur in the cold stage of intermitting fever? in this instance the

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system is labouring under every symptom of debility, and consequently according to Dr Cullens idea a laxity of the exhalants ought to exist; but, is the perspiration increased in this stage of the disease? certainly not.

It may be said in objection to the above observations, that in the latter stage of fever attended with too little action in the sanguiferous system and evident debility in every other part of the body, a cold sweat frequently breaks out immediately preceding the dissolution of the patient; this sweat I would attribute to a deficient absorption and not to a laxity of the cutaneous capillaries. The evaporation from the skin is likewise diminished in consequence of the absence of heat, the necessary result of diminished action throughout the system.

We must then ascribe the origin of dropsy accompanied with debility and unattended with

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fever to some cause other than a laxity of the secretory organs. This cause I imagine to be a decreased action or total paralysis of the absorbents, whilst the secretion is going on, tho, in a lesser degree than in perfect health.

The other causes mentioned by Dr Cullen as sometimes producing dropsy, I will pass by in silence.

The theory of dropsy being a disease induced by a morbid excitement and preternatural action of the arterial system, as advanced and ably supported by Dr Rush is extremely ingenious and undoubtedly correct. That too much action in the bloodvessels, or in other words, that fever with excess of action in the sanguiferous system, should also excite an increased action of the glandular or secerning system of internal membranes and of course a copious secretion of their respective fluids, we can readily conceive.

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Dr. Rush does not attempt to explain the production of atonic dropsies, or such as are attended with a feeble morbid action in the arteries; he merely mentions their occurrence.

Those cases of dropsy may be accounted for in the following manner; during the prevalence of debility in every part of the body an accumulation of excitability takes place, particularly in those organs which have been in constant exercise and at the same time exposed to the variations of the atmosphere. The vessels on the surface of the body of course recover from their torpid state first, and act with increased energy; on the contrary the heart and arteries continue in a state of torpor, and as the excitability is expended by the cutaneous capillaries an accumulation of it is prevented in those parts; this state of the system constitutes typhus fever.

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The capillaries of the internal membranes, or those of a particular membrane, as of the peritoneum for instance, next take on increased action and the secretion being greater than usual, while the action of the absorbents is not much increased, a collection of fluid is the necessary result. Perhaps a direct sympathy exists between the capillaries of the skin and those of the internal membranes; but whether this is the case or whether they act with more energy in consequence of an accumulation of excitability I am not prepared to say, certain it is, however, that an increased action may take place.

Dr Rush likewise says, "dropsies are often connected with a certain intermediate or mixed action in the arterial system, analogous to the typhoid action which takes place in certain fevers". In these cases particular attention must be paid to the symptoms, and debilitating or stimulating remedies administered according

to the prevalence of too much or too little excitement in the blood-vessels.

Dr Darwin in his general division of diseases, places dropsy under the head of decreased irritation with decreased action of the absorbent system. In attributing dropsy indiscriminately to a deficient action or a complete paralysis of the absorbents, Dr Darwin has unquestionably erred; this certainly is one cause, but the disease is frequently produced by the causes which I have above enumerated.

Dr Brown calls this disease an asthenic affection and says it arises from laxity and atony of the capillaries. I think we have shewn beyond all shadow of doubt that a laxity of the secerning vessels is not the cause, and in cases of debility unaccompanied with fever, that a want of tone or a paralysis of the absorbents is the true source of dropsy.

I come now to the second part of my

dissertation viz, to hazard my own opinion concerning the origin of some cases of dropsy.

Collections of watery fluids in the different cavities of the body may sometimes occur independently of the causes which I have already recited. Before I endeavour to explain the manner in which dropsy is produced under these circumstances, I will beg leave to divert the attention of the reader to the phenomena of some other diseases.

Dr. Darwin in his inestimable work entitled Zoonomia says diabetes is produced in the following manner, "when the urinary lymphatics invert their motions and pour their refluent contents into the bladder, some other branch of the absorbent system acts with greater energy to supply this fluid. If it is the intestinal branch, the chyliferous diabetes is produced: if it is the cutaneous or pulmonary branch, the aqueous diabetes is produced: ~~and~~ if it is the cellular or

When the operation of paracentesis is performed in cases of ascites accompanied with general anasarca it is not unusual for the fluid to pass from the different parts of the body to the abdominal cavity; this is another proof of the retrograde action of the peritoneal lymphatics. The collection takes place so suddenly that it would be impossible for the fluid to be absorbed and carried into the circulation and then secreted by the abdominal capillaries.

cystic branches the mucilaginous diabates."

When drastic cathartics are administered the lacteals invert their motions and an immense quantity of fluid is conveyed into the intestines. If a retrograde action of the absorbents occurs in those organs (the bladder and intestines) which I think no person will doubt, we may with equal propriety suppose that the same thing happens in other parts of the body.

"Remember Man, the Universal Cause
Acts not by partial but by gen'ral laws".

I am of opinion that dropsical affections are frequently produced precisely on the same principle; the motion of the absorbent vessels which open into the cavity of the abdomen, for example, becomes retrograde in consequence of debility, all retrograde motions being the effect of debility in the part, brought on by defect or excess of stimulus or from deficient irritability. The refluent contents of the absorbents, in this instance,

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are poured into the abdomen, occasioning the disease termed ascites.

Some other branches of the absorbent system act with increased vigour by reverse sympathy to furnish the fluid thus regurgitated, these are most commonly the cellular and urinary branches. This also accounts for the extreme emaciation attendant on dropsy; the fluid deposited in the cysts of the cellular membrane is absorbed and carried to the abdominal lymphatics or those of some other cavity, thence it is conveyed by a retrograde motion into the cavity having its lymphatics thus inverted.

The doctrine which I have attempted to establish is only applicable to dropsies that are confined to a particular cavity; when the system is likewise affected with general anasarca we must deduce their origin from universal debility and torpor of the absorbent

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Much yet remains to be explained concerning the influence of the retrograde motions of the absorbent system in the production of diseases, nor can we expect an accurate investigation of this intricate subject, until our knowledge of the laws of the animal economy is enlarged through the medium of anatomy.

I will now conclude this imperfect essay with a brief enumeration of the remedies for dropsy.

The strictest attention should be paid to the state of the pulse and all the attendant symptoms should be observed with scrutiny, otherwise it will be impossible to accommodate our medicines to the various forms of dropsy. How many patients have been hurled into eternity by the negligence of physicians to this point? while prescribing for the name

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tend to the state of the system.

If upon examination it appears that an indurated or scirrhous state of the liver or spleen, interrupting the free circulation of the blood, is the cause of the disease, the in=
dication is to remove this impediment to the circulation. The medicines which possess most efficacy in this species of dropsy are the dif=
ferent chalybeate preparations and mercury; the latter given in quantities sufficient to excite a salivation has frequently perform=
ed cures. Cathartics are also extremely ser=
viceable. Those articles termed diuretics must not be neglected, especially nitre, cream of tartar, squills, digitalis and tincture of can=
tharides.

When we have reason to suspect a paralysis of the absorbent system as the cause of dropsy we must endeavour to excite that

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system of vessels into action by the exhibition of tonic and stimulant medicines, such as metallic tonics, peruvian bark, opium, colombo, polyala seneka, electricity, and the secretion of urine is also to be promoted by the use of diuretics.

The treatment of atonic dropsy is in every respect similar to that for dropsy occasioned by debility or paralysis of the absorbents.

The remedies for dropsical effusions produced by excess of action in the arterial system, are such as diminish the undue excitement in the blood-vessels and increase the absorption of the effused fluid. The first which I shall mention is blood-letting, this when indicated by the pulse is equally as necessary as in pneumonia or any other inflamatory affection. In the same proportion as we reduce the arterial action by depletion, we increase the action of the absorbents. Dr. Rush says he has known

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dropsy completely cured by this remedy alone. Emetics and nauseating medicines are also very efficacious in relieving this disease. During the operation of emetics the lacteals arising from the duodenum and the lymphatics of the stomach are inverted pouring their contents into these organs; some other branch of the absorbent system acts with increased energy to supply this fluid and a general increase of absorption is the consequence. The same thing (an increased absorption) occurs when digitalis, squills or other nauseating drugs are administered.

Purges have likewise been used with the most beneficial results in this species of dropsy. Super-tartrite of potash, Jalap, Gamboge and Calomel have been most generally used; of these I think a combination of Jalap and Cream of tartar is to

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be preferred, but cream of tartar used in conjunction with Gamboge has proved successful in many instances. Large quantities of diluents containing a portion of this salt have been of evident advantage in the hands of Sir George Baker and other practitioners. Dr Ferriar of Manchester in England recommends very highly the use of Elaterium in dropsies generally, but more particularly in Hydrothorax; in very small doses it operates powerfully as a cathartic.

The action of cathartics like emetics produces a retrograde motion of the lacteals, and the absorbents acting more powerfully at the same time by sympathy, carry their contents to the intestinal absorbents through which it is regurgitated into the intestines.

If dropsy ever originates as I have conjectured by a retrograde action of the

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absorbents, the most effectual remedies will be emetics, nauseating medicines and par= ticularly purges. The object of these medi= cines would be to produce a natural and healthy action of the vessels concerned in causing the effusion, by creating a retrograde motion of the lacteals; a general law of as= sociated motions being, when a distant part takes on inverted motion that with which it sympathizes ceases.